# “Empowerment Secondary School Teachers in Urban Areas Through Technology: A Comprehensive Study in Howrah District ”

## Synopsis

*A Synopsis submitted in fulfilment of the requirements for the degree of*

**Doctor of Philosophy**

By

**Swastika Samanta**

**Under the Guidance of**

**Dr. Suman Kumari**

Department of Education

**YBN University, Ranchi**

December 2024

**Research Supervisor: -**

**Dr. Suman Kumari**

**Assistant Professor**

**YBN University, Ranchi**

**Research Scholar:**

**Swastika Samanta**

**Enrolment No: YBNU2302046**

**Department of Education**

| SL. NO. | Topic |
|---|---|
| 1. | Introduction |
| 2. | Literature Review |
| 3. | Objective of Research Study |
| 4. | Hypothesis of Research Problem |
| 5. | Problem Statement & Explanation of Technical Terms |
| 6. | Research Design |
| 7. | Delimitations of the Study |
| 8. | Chapterization |
| 9. | Reference |

## 1. Introduction

### Background of the Study

Over the years, technology has shaped many industries and fields including academic and non-academic platforms. The role of technology lies in smoothening everyday tasks and getting faster results for an action. In imparting education and shaping the learning process, technology has brought an end to many barriers. It has made education more personalised, it has helped learning reach the remotest part of a country through digital systems and it has increased student engagement (Ibrahim et al. 2023). To keep up with this flow of technological advantages it is important to empower teachers to use technology, adopt it, get more comfortable with its interfaces and improve their learners' outcomes. It is believed that including multimedia resources has made learning management systems more interactive and increased students' retention powers (Butera et al. 2021). At a global level, educational institutions are using more technology to improve resource accessibility, and pedagogical efficiency. Teachers are empowered to use these student-centered technology applications for a better and quicker mode of education. Industry data has shown that digital tools are often used by 39.67% for online examinations, 50% for sharing recorded content, 62% for conducting online assignments and 74% for virtual classrooms (Dubey 2022).

Technology cannot substitute a teacher. Teachers are the catalysts for technological adoption in classrooms and also bridge between tools and learners (Stumbriene et al. 2024). Therefore, it is important that teachers are empowered through digital literacy and innovative pedagogical approaches with which they can ensure their professional development and students' learning outcome. Technology and teachers should be so interacted that the two can create a supportive environment for one another. Some of the areas where teachers find themselves stuck in using technology are- demand for face to face interaction, need for smoother connectivity and rise in screen time (Farrell 2021). Besides, teachers also find these new and advanced mediums alien to their conventional teaching approaches. This is due to lack of training and an infrastructure that is not overcoming resistance from institutional cultures. Cultivating teachers' digital literacy is very important in today's world to support students' distance education and other forms of educational modems (Jung et al. 2024).

The use of technology cannot be of any use unless teachers know and get accustomed to how to use it. Focusing on this strategic role of teachers in educational transformation, the scope of this study is to understand how teachers can be empowered to adopt technological solutions in their everyday teaching practices for a sustainable change. This study has aimed to investigate how technology can be harnessed as both an instructional aid and a transformative tool that can make their profession easier and broader. Technology should be so used that it can redefine teachers' roles, enhance their capacities, and nurture professional autonomy and collaboration among them.

## 2. Literature Review

### Important Literary Works

Academic works have also pointed to the technological disparities that teachers are facing in getting access. The lack of digital literacy among teachers has exacerbated the educational inequalities leading to a resistance to adoption.

*Educational Technology*

Academic studies have vocated that technologies can transform the learning environment for students. As per Manaf (2024), there are broad-ranging influences of using digital tools in reshaping classroom dynamics. Use of technology can increase efficiency of curriculum delivery, and student engagement. However, this narrative of improving student outcomes has also been juxtaposed by researchers. As per, Bernota et al. (2024), the lack of face to face interaction, need for smoother connectivity and rise in screen time has rather disrupted the transformative theory of education technology. Thus, academic studies have looked towards technology that should act as a support mechanism instead of becoming a central agent in redefining pedagogical roles and practices.

*Teacher Beliefs, Agency, and Institutional Context*

As per Granić (2022), successful adoption of educational technology for teachers depends on their beliefs, motivation, and agency. Thus, teachers need to overcome their psychological barriers of intrinsic beliefs about teaching and learning and physical barriers such as access to resources. Empowering teachers through technology has to overcome the speculation that adapting to advanced tools is different from traditional approaches. As per Rabel (2024), as long as teachers keep looking at technology as something which is peripheral or irrelevant to their teaching philosophy, they will not be encouraged to adapt to it and use it in educational services.

Besides, as per Butera et al. (2021) it is important to empower teachers through technology so that they can act as change agents within their schools, inspire their colleagues and change the learning module for their students. The approach to empowerment must align with their inner motivational structures of teachers.

*The Need for a Teacher-Centered Perspective*

As identified by academic reviews, technological influence ineducation has pushed teachers from their traditional modem and has made their role more about interaction and tech-savvy (Cohen and Cucoş 2023). Therefore, empowering teachers has become essential. For this, academic institutes need to have alignment with the pedagogical frameworks, bring in more supportive policies, and robust infrastructure. As per Jung et al. (2024), digital literacy should be so imparted among teachers so that they can learn about the responsible and ethical use of digital tools for problem-solving and content creation. The study has stated that teachers need to have more skills for understanding, and creating through technology. Teachers need to become more competent to meet the needs and preferences of modern students.

*Barriers to Empowerment Through Technology*

Although there are many benefits to empowering teachers through technology and for using technology- there are also many barriers to empowerment through technology. There are many investment approaches by institutes and governments worldwide for empowering teachers. However, lack of policy and misunderstanding of teachers' issues has led to lack of adequate professional development. Besides, in rural or economically disadvantaged areas teachers do not get the proper network connection or association to get properly groomed for technological upgrades. Teachers who are older or come from less tech-savvy backgrounds cannot overcome digital literacy gaps due to strategies that focus on students and not on teachers.

**Underpinning Theories**

Assessing the academics that have been discussed, some of the theories that are most prevalent are: 'Technological Pedagogical Content Knowledge' (TPACK), 'Substitution, Augmentation, Modification, Redefinition)' SAMR model and 'Self-Determination Theory'.

As per the TPACK model, teachers need to possess a blend of technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK) (Mohamad 2021). The intersection of these domains is what equips a teacher to design meaningful learning experiences. But for this, teachers have to align their curricular goals with their tech-proficiency. The SAMR model is

a hierarchy based model that focuses on evaluating the depth of technology integration (Nair and Chuan 2021). By following this, teachers can increase their professional autonomy, creativity, and satisfaction. The Self-Determination Theory is focused on understanding how individuals can be motivated to gain more autonomy, and competence (Guay 2022). Teachers in the educational industry need to be empowered through supportive and independent decision-making (autonomy), gaining skills (competence), and more collaboration and connection with peers and students (relatedness).

**Research Gaps**

In empowering teachers through technology, both policymakers and researchers have overlooked the psychological and professional needs of teachers. Most studies are focused on how to make classroom teaching more interactive for students. This one-sided approach has overlooked the needs of teachers and also the impact of technological implementation through diverse age groups and teaching contexts. Besides, not much studies have show how teachers integrate technology in practice and what barriers they face in fully utilising technology. This has created a gap in understanding how age, experience, and digital competence interact to influence technology adoption and empowering teachers in an educational setting.

## 3.Aim and Objective of Research Study

Aim: The aim of the study is to understand the role of technology in empowering teachers in their professional roles, and improving their quality of teaching and educational outcome.

Objectives:

- To understand the extent and nature of technology and its proper use by teachers across different educational settings.
- To assess the impact of technological interventions on teachers' professional development, pedagogical practices, and collaboration.
- To find out the enablers and barriers to technological empowerment of teachers from institutional, policy, and individual perspectives.
- To provide recommendations for improving their interaction with technological empowerment in supporting education infrastructure and growth.

## 4. Hypothesis of Research Problem

**Hypothesis: -**

**H**a**1**: Teachers who use digital tools demonstrate higher teaching effectiveness than those who do not.

**H**a**2**: Technology integration positively influences teachers' classroom management and student engagement.

**H**a**3**: Access to technological resources enhances teachers' professional development and continuous learning.

**H**a**4**: Teachers' attitudes toward technology significantly affect their level of empowerment.

**H**a**5** : Training in educational technology leads to increased confidence and competence among teachers.

## 5. Problem Statement

**"Empowerment Secondary School Teachers in Urban Areas Through Technology: A Comprehensive Study in Howrah District "**

**Technical Words**

**•Empowerment :-**

Although technology has the potential to empower teachers by enhancing their teaching skills, confidence, and professional growth, many educators are not fully able to utilize it effectively. A lack of proper training, insufficient digital competence, limited access to resources, and resistance to change often prevent teachers from feeling confident and independent in using technology.

As a result, teachers may rely on traditional methods instead of innovative digital practices, which limits both their own development and the quality of classroom learning. The issue is not just the availability of technology, but whether teachers are truly empowered—having the skills, knowledge, and motivation—to integrate it meaningfully into their teaching.

Therefore, there is a need to study how technology contributes to teacher empowerment and to identify the factors that support or hinder this empowerment.

**•Secondary Level:-**

At the secondary school level, technology has the potential to greatly enhance teaching effectiveness and student engagement. However, many secondary school teachers are not fully empowered to integrate technology into their teaching practices. Despite the availability of digital tools such as smart classrooms, online resources, and educational software, teachers often face challenges such as lack of proper training, inadequate technical support, limited infrastructure, and insuffiicient confidence in using technology.Additionally, differences in access to resources between schools further affect the effective use of technology at this level. As a result, teaching methods often remain traditional, limiting the development of innovative and interactive learning environments,there is a need to examine how technology can empower secondary school teachers, identify the barriers they face, and explore strategies to improve effective technology integration in secondary education.

**•Teacher:-**

The context of secondary education, teachers play a crucial role in shaping students' academic and technological competencies. Although technology offers significant opportunities to enhance teaching effectiveness, many secondary level teachers are not fully empowered to use it efficiently in their classrooms. Challenges such as inadequate training, limited digital skills, lack of confidence, and insufficient institutional support hinder their ability to integrate technology into teaching,the pressure of completing a structured curriculum and preparing students for examinations often discourages teachers from adopting innovative, technology-based methods. As a result, the potential of technology to improve teaching–learning processes remains underutilized.Therefore, it is necessary to examine how technology can empower secondary level teachers, identify the barriers they face, and suggest measures to enhance their effective use of technology in education.

**• Technology:-**

At the secondary level, teachers are expected to adopt modern and effective teaching methods to meet students' evolving learning needs. Although technology has great potential to empower teachers by enhancing their teaching skills and classroom practices, many secondary school teachers are not fully able to use it effectively. This is due to factors such as lack of training, limited digital skills, inadequate resources, and insufficient institutional support.As a result, technology integration in teaching remains limited, and teachers are not fully empowered to improve the quality of education. Therefore, it is necessary to examine the challenges faced by secondary level teachers and explore how technology can effectively empower them in the teaching–learning process

## 6. Research Methods

### Research Design

The study can be most enriched with the adoption of primary research design. This way, the researchers can interact with teachers on a first-hand basis and record their experiences and problems without any second-hand interpretation. For capturing real-time insights and first-hand perspectives, the study would focus on digital empowerment of teachers. Purposes of the study would be more suited to the primary design. From the perspective of the findings in the study, the will be applicable to the context, and maintain a focus to current trends that are prevailing in the education sector (Umar et al. 2023).

### Research Approach

The study would take a quantitative approach as quantitative is a useful design in measuring variables and relevant data. The study would also show trends, patterns, and relationships within the use of technology and its ability to empower practitioners in an educational context (Zakhidov 2024). Quantitative approach of the study would also support the assessment of behaviours, attitudes, or characteristics and understand what percentage of teachers are in support of technological adoption. By understanding how far teachers are keen to adapt to technology, the policymakers can understand the in-hand problems of the industry and bring more effective and systematic solutions. This way, the results would give quantifiable evidence of how teachers are perceiving and using technology. Qualitative Approach also be use here.

**Data Collection**

For data collection, the researchers would use online surveys. This way, researchers can collect responses from teachers through questionnaires that will be designed to gather data on various dimensions of digital literacy and technological empowerment (Lavidas et al. 2022). The responses would be focused on questions on frequency and types of technology used in teaching, their self-assessed digital skills, their perceived challenges and support mechanisms and their attitude towards digital teaching tools. The survey shall be circulated through online medium to escape time and distance constraints. Before distribution of the survey, a sample test would be done for ensuring that the forms are collecting.

TPACK survey (Dr.Matthew J Koehler) (The Technological Pedagogical Content Knowledge ) will be used here for data collection.

**Sampling**

The sample size for the study shall be 150 Teachers( 08-10 schools). These teachers can be from secondary across urban areas. The selection of the samples would be done through simple random sampling. Simple random sampling would ensure that teachers are categorized on sub-groups of teaching level (Secondary ) and geographic location (urban ) (Nguyen et al. 2021). This way, the study and its data analysis would have an effective and vast scope of approach. The representation would also be even and there would be no biases.

**Data Analysis**

The study would be conducted through content analysis of the attended responses. Data analysis would have in-depth analysis of numerical data that can help in contextualizing teacher perspectives and understand their challenges, support needs, and attitudes.

**Ethical Considerations**

Being a primary study, researchers might fail to interpret the first-hand findings and it is also possible that participants might not take the study seriously. Thus, researchers shall be given proper training for handling primary data. Meanwhile, participants would be provided a consent form on which they would be made aware of the importance of the study and also their voluntary participation (Rowland 2021).

**Research Significance**

Empowering teachers through technology is focused on understanding the approaches and challenges of the education industry from the perspective of teachers and improving the systems. As such, the study has both academic and practical domains. It has addressed the gap in existing literature. The study is more focused on development of teachers and their empowerment within the realm of educational technology instead of student-centered outcomes. Thus, it has a more balanced and comprehensive view of technology integration in education. The findings of the study are going to be primary which would provide first-hand data to policymakers (Zakhidov 2024). This data can be used for solving the real-world challenges that teachers are facing in adopting and integrating digital tools.

Policymakers and industry leaders can customize their technologies in order to make it more interactive to the teachers. It is important to make such grounded and responsive policy decisions with which teachers can have their problems solved and can accept the intervention of technology as a tool for better professional discourse (Pashsyee et al. 2021). For school leaders and education departments, the study has a scope to offer actionable recommendations which can be developed effectively. The focus would be on making an inclusive professional development program with which teachers can grow their digital literacy and experience and feel empowered. The study would also help in understanding the impact of the digital divide across age and context and propose strategies that can make inclusive educational reforms.

## 7. Delimitations of the Study

- The study is limited to selected Secondary level teachers only.
- Focus is Male and Female both teachers
- The survey area will be confined to the Howrah district of West Bengal only.

Limited geographical coverage (urban area only).

## 8. Chapterization

- **Chapterization 1 :** Background of the Study (Introduction)
- **Chapterization 2 :**Review of Literatures
- **Chapterization 3:** Research Methodology
- **Chapterization 4:**DataAnalysis,Interpretation and finding
- **Chapterization 5:**Conclusion and References

## 9.References


Bernota, C.A., McManus, L.B. and Krähenbühl, L., 2024. How Does Children's Usage of Screen Time Impact Their Communication Development, in Relation to the Sociocultural Theory.

Butera, F., Batruch, A., Autin, F., Mugny, G., Quiamzade, A. and Pulfrey, C., 2021. Teaching as social influence: Empowering teachers to become agents of social change. Social Issues and Policy Review, 15(1), pp.323-355.

Cohen, D. and Cucoş, C., 2023. Beyond the Blackboard: Portraying the Image of the Tech-Savvy Teacher. Educatia 21, (25), pp.6-14.

Dubey, V. (2022). 31% teachers in India not proficient in digital tools, 79% still undergoing training: survey – BusinessToday. Business Today. Available at: https://www.businesstoday.in/latest/trends/story/31-teachers-in-india-not-proficient-in-digital-tools-79-still-undergoing-training-survey-335065-2022-05-25 (Accessed: 13 June 2025).

Farrell, T.S., 2021. "COVID-19 challenged me to re-create my teaching entirely": Adaptation challenges of four novice EFL teachers of moving from 'face-to-face'to 'face-to-screen'teaching. Iranian Journal of Language Teaching Research, 9(3 (Special Issue)), pp.117-130.

Granić, A., 2022. Educational technology adoption: A systematic review. Education and Information Technologies, 27(7), pp.9725-9744.

Guay, F., 2022. Applying self-determination theory to education: Regulations types, psychological needs, and autonomy supporting behaviors. Canadian Journal of School Psychology, 37(1), pp.75-92.

Ibrahim, U., Argungu, J.I., Mungadi, I.M. and Yeldu, A.S., 2023. E-learning and remote education technologies: lessons from the pandemic. Int. J. Educ. Life Sci., 1(3).

Jung, J., Choi, S., and Fanguy, M. (2024). Exploring Teachers' Digital Literacy Experiences. The International Review of Research in Open and Distributed Learning, 25(2), 41–59. https://doi.org/10.19173/irrodl.v25i2.7572

Lavidas, K., Petropoulou, A., Papadakis, S., Apostolou, Z., Komis, V., Jimoyiannis, A. and Gialamas, V., 2022. Factors affecting response rates of the web survey with teachers. Computers, 11(9), p.127.

Manaf, S., 2024. Educational management in the digital age: Integrating technology for student success. AL-ISHLAH: Jurnal Pendidikan, 16(2), pp.1451-1461.

Mohamad, F.S., 2021. Technological pedagogical content knowledge (TPACK) and the teaching of science: Determiners for professional development. Studies of Applied Economics, 39(1).

Nair, R.S. and Chuan, T.C., 2021. Integrating technology that uses modified SAMR model as a pedagogical framework in evaluating learning performance of undergraduates. The Educational Review, USA, 5(10).

Nguyen, T.D., Shih, M.H., Srivastava, D., Tirthapura, S. and Xu, B., 2021. Stratified random sampling from streaming and stored data. Distributed and Parallel Databases, 39, pp.665-710.

Padmaja, V. and Mukul, K., 2021. Upskilling and reskilling in the digital age: the way forward for higher educational institutions. In Transforming higher education through digitalization (pp. 253-275). CRC Press.

Pashsyee, J., Talebi, B. and Daneshvar, Z., 2021. School Human Resource Development's Policymaking Model: A Grounded Theory Study. School Administration, 9(4), pp.148-161.

Rabel, B., 2024. TEACHER PERCEPTIONS OF AIED: Exploring Future Scenarios in Secondary Education.

Rowlands, J., 2021. Interviewee transcript review as a tool to improve data quality and participant confidence in sensitive research. International Journal of Qualitative Methods, 20, p.16094069211066170.

Stumbrienė, D., Jevsikova, T. and Kontvainė, V., 2024. Key factors influencing teachers' motivation to transfer technology-enabled educational innovation. Education and Information Technologies, 29(2), pp.1697-1731.

Umar, U., Purwanto, M.B. and Al Firdaus, M.M., 2023. Research and development: As the primary alternative to educational research design frameworks. JELL (Journal of English Language and Literature) STIBA-IEC Jakarta, 8(01), pp.73-82.